

SUMMARY OF REQUIREMENTS FOR OIL WELL SITES AND EQUIPMENT USED IN OIL PRODUCTION

On August 18, 2015 EPA proposed updates to its 2012 New Source Performance Standards for the oil and gas industry to reduce emissions of greenhouse gases – most notably methane – along with smog-forming volatile organic compounds (VOCs). The updates would add methane to the pollutants covered by the rule, and would add requirements to limit emissions from hydraulically fractured oil well completions and pneumatic pumps, in addition to requirements for detecting and repairing leaks at oil well sites.

Also on August 18, 2015, EPA issued draft Control Techniques Guidelines (CTGs) for states to use to reduce VOC emissions from existing processes and equipment at natural gas well sites in areas subject to CTG requirements.

REQUIREMENTS FOR NEW AND MODIFIED SOURCES NOT COVERED IN THE 2012 RULES

Completions of Hydraulically Fractured Oil Wells

- Many hydraulically fractured wells that are drilled primarily for oil production contain natural gas along with the oil. During a stage of well completion known as “flowback,” following the fracture of these wells, gas flows to the surface along with water, fracturing fluids, condensate and crude oil.
- EPA is proposing to require owners/operators of hydraulically fractured oil wells to capture the natural gas that currently escapes into the air. Capturing the gas will both reduce methane and VOC emissions and maximize natural gas recovery from well completions. This significant emissions reduction – nearly 95 percent -- would be accomplished primarily through the use of a proven process known as a “reduced emissions completion” or “green completion.”
- In a green completion, special equipment separates gas and liquid hydrocarbons from the flowback that comes from the well as it is being prepared for production. The gas and hydrocarbons can then be treated and used or sold, avoiding the waste of natural resources that cannot be renewed.
 - Like the 2012 rule, the proposed updates would not require green completions for certain wells, such as new exploratory (“wildcat”) wells, delineation wells (used to define the borders of a reservoir), or low pressure wells. The rule would also not require green completions from other hydraulically fractured oil wells if it is not feasible to get the gas to a pipeline. Owners/operators of these wells generally must reduce emissions using combustion during the well-completion process.

- EPA is seeking comment on criteria to help define the availability of gathering lines, such as distance from the well, capacity to accept additional throughput, and owner/operators' ability to obtain rights of way to cross properties.
- The agency is proposing that wells with a gas-to-oil ratio of less than 300 standard cubic feet of gas per barrel of oil would not be subject to the green completion requirements.
- In addition, EPA is seeking comment on exempting low production wells -- those with an average daily production equivalent to 15 barrels a day or less -- from the requirement to perform green completions, because these wells are typically low-emitting. The agency also is seeking comment on how to identify those wells before the well completion phase.
- Oil wells that are refractured and recompleted would not be considered to be "modified" if well owners and operators use green completions to reduce emissions, and they meet notification and reporting requirements for new wells. This is a requirement in the 2012 rules.
 - In a number of states, this allows owners/operators to refracture wells without triggering state permitting requirements. This flexibility reduces burden to both industry and permitting agencies, without compromising the environmental benefits of the rule.
- The proposed requirements would become effective 60 days after the final rule is published in the Federal Register. EPA is seeking comment on whether a sufficient supply of green completion equipment and personnel would be available by this date, and whether the green completion requirement should be phased in.

Finding and Repairing Leaks (Fugitive Emissions)

- Leaks, also known as "fugitive emissions," can occur at a number of points at an oil well site when connections are not properly fitted, hatches are not properly weighted and sealed, or when seals and gaskets start to deteriorate. Leaks are a significant source of methane and VOC emissions in the rapidly growing oil and gas industry.
- EPA is proposing to require that owners/operators of an oil well site use a technology known as optical gas imaging to conduct a leaks monitoring survey. Optical gas imaging equipment uses a special camera to "see" emissions of methane and VOCs.
- For new well sites, owners/operators would have to conduct the survey within 30 days after the end of the first well completion or on the date the site begins production. For modified sites, the survey would have to be conducted within 30 days of the modification. After the

first survey, leaks monitoring surveys would be conducted twice a year; EPA is co-proposing to require leaks monitoring survey yearly at both new and modified well sites.

- EPA is proposing to exempt some well site from the leak detection and repair requirements. They are:
 - Low production well sites (those with an average combined oil and natural gas production of less than 15 barrels of oil equivalent per well per day); and
 - Well sites that contain only wellheads (known as “Christmas trees”)
 - The agency also is seeking comment on criteria that could be used to determine whether a corporate-wide leak detection and repair program, which some owners and operators already have in place, could be deemed to meet the requirements in the proposed rule.
- For well sites covered by the leaks detection and repair requirements, the survey would cover a number of components, including valves, connectors, pressure-relief devices, open-ended lines, access doors, flanges, crank case vents, pump seals or diaphragms, closed vent systems, compressors, separators, dehydrators, and thief hatches on storage tanks, among others.
 - Equipment that vents natural gas as part of normal operation are not considered to be leaking and would not be covered by this requirement; however, leaks surveys can also help operators detect malfunctions in these devices, such as pneumatic controllers.
- Any leaks found during the surveys would have to be repaired within 15 days, unless the repair would require shutting down production. In that case, owners/operators would be required to fix the leak at the next scheduled shutdown.
- The proposed rule includes incentives for minimizing leaks:
 - If leaks are found from less than 1 percent of covered components during two consecutive surveys, owners/operators may conduct the monitoring survey yearly instead of every six months.
 - If leaks are found from 1 to 3 percent of covered components, operators would have to continue monitoring every six months.
 - Operators of sites with leaks from more than 3 percent of covered components during two consecutive monitoring surveys would have to monitor every three months.
- EPA is soliciting comment on whether to allow operators to conduct the leaks monitoring survey using EPA Method 21 as an alternative to optical gas imaging. Method 21 is an EPA

method for determining VOC emissions from process equipment. The method is based on using a portable VOC monitoring instrument, such as an organic vapor analyzer (sometimes referred to as a “sniffer”).

- The agency also is seeking comment on requiring the monitoring survey to be conducted quarterly.

New & Modified Pneumatic Pumps

- Pneumatic pumps use gas pressure to drive a fluid. These pumps often are used at oil production sites where electricity is not readily available. Pneumatic chemical injection pumps are primarily used to inject small amounts of chemicals to limit production problems and protect equipment. Pneumatic diaphragm pumps are used to transfer fluids or to circulate glycol “heat trace medium,” which is used to keep pipes and equipment from freezing, for example.
- EPA is proposing to require that VOC and methane emissions from pneumatic pumps be controlled by 95 percent if an emission control device is already on site. This reduction would be accomplished by routing the emissions from the pump to the existing control device, which may already be located at the well site to control emissions from other equipment, such as storage tanks.

Requirements for Equipment Covered by the 2012 Rules

- EPA is proposing to add methane standards for the equipment and processes covered by the 2012 NSPS for VOCs. In its analysis of the Best System of Emission Reduction (BSER) for the proposed rules, EPA has determined that best systems for reducing methane and VOC emissions are the same. As a result, EPA is proposing that the requirements for the following new and modified pneumatic controllers would be the same as the requirements in the 2012 rule.
- The 2012 rules also included requirements for storage tanks at natural gas transmission stations. Today’s proposal would not change those requirements.

SOURCES SUBJECT TO DRAFT CONTROL TECHNIQUES GUIDELINES

CTGs apply in ozone nonattainment areas classified as Moderate and above, and throughout the Ozone Transport Region

- EPA’s draft Control Techniques Guidelines for reducing VOC emissions from the oil and natural gas industry would cover several types of existing processes and equipment at oil well sites.
- CTGs do not apply any requirements directly to facilities; rather, they provide recommendations for state and local air agencies to consider in determining reasonably

available control technology (RACT) for reducing emissions from covered processes and equipment. States may use different technology and approaches, subject to EPA approval.

- EPA's RACT recommendations would apply to several types of processes and equipment at oil well sites. The process/equipment and RACT recommendations are:
 - Leaks (fugitive emissions) – Implement an optical gas imaging monitoring and repair program; includes monitoring twice yearly. This requirement would not apply to low production well sites.
 - Pneumatic controllers – Limit natural gas bleed rate to 6 standard cubic feet per hour or less, with exceptions for operational requirements and safety.
 - Pneumatic pumps – Reduce VOC emission from each gas-driven chemical/methanol and diaphragm pump by at least 95 percent, if there is an existing control device on site.
 - Storage tanks – Reduce VOC emissions by 95 percent at each storage tank with the potential to emit 6 tons or more of VOCs a year.

MORE INFORMATION

- For summary information on proposed requirements for other types of facilities in the oil and gas industry, to read the proposed rule, and to read the draft CTGs, visit <http://www.epa.gov/airquality/oilandgas/actions.html>